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- **Dambrauskas, Robert,**
c/o Eastman Kodak Company
Rochester, New York 14650-2201 (US)
- **Sadlik, Craig A., c/o Eastman Kodak Company**
Rochester, New York 14650-2201 (US)

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(71) Applicant: **EASTMAN KODAK COMPANY**
(a New Jersey corporation)
Rochester, New York 14650 (US)

(74) Representative: **Haile, Helen Cynthia et al**
Kodak Limited
Patent, W92-3A,
Headstone Drive
Harrow, Middlesex HA1 4TY (GB)

(72) Inventors:
• **Border, John, c/o Eastman Kodak Company**
Rochester, New York 14650-2201 (US)

(54) **Method of making a precision microlens mold and a microlens mold**

(57) A method for making microlens molds and microlens array molds is described which utilizes a spinning half radius diamond cutting member operated in a plunge cut in a technique similar to milling to cut the op-

tical surface into a diamond turnable material. The method can be used to make high sag lens molds with high accuracy. Microlens array molds can be made with a high degree of uniformity and a nearly 100% fill factor.

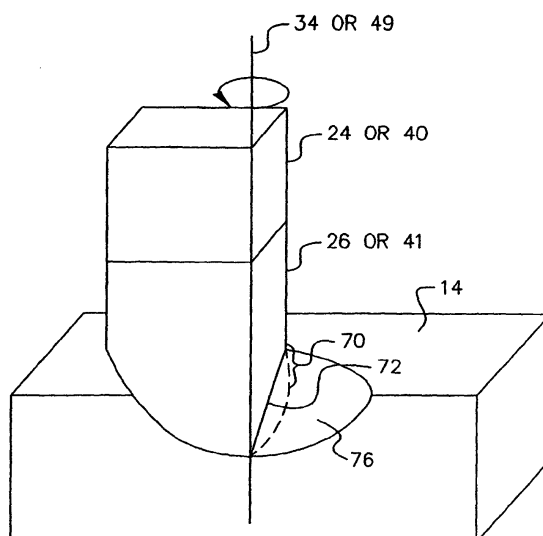


FIG. 8

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EUROPEAN SEARCH REPORT

Application Number
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X	EP 0 450 780 A (MATSUSHITA ELECTRIC IND CO LTD) 9 October 1991 (1991-10-09) * column 7, lines 49-56 * * figure 5 *	1-7	B29D11/00 B29C33/00
A	----- US 5 699 190 A (TUSCHONG RICHARD JOHN ET AL) 16 December 1997 (1997-12-16) * column 1, lines 5-8 * * column 3, lines 36-39 * * column 4, lines 19-27 * * figure 1 *	1	
A	----- US 4 198 182 A (GREEN STANLEY) 15 April 1980 (1980-04-15) * column 4, lines 30-44 * * column 5, lines 36-57 * * figures 1,4,7 *	1	
A	----- US 5 439 621 A (HOOPMAN TIMOTHY L) 8 August 1995 (1995-08-08) * column 5, lines 28-34 *	5	
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----- The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 November 2003	Examiner Bibollet-Ruche, D
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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LACK OF UNITY OF INVENTION
SHEET B

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-9

A method of making a precision mold for a micro-sized
article

2. claims: 10-12

A microlens mold having a sag of more than 30 microns.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 20 3994

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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04-11-2003

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